Chapter 8
REVISED FINAL ENVIRONMENTAL IMPACT STATEMENT

8.1 Introduction

The National Environmental Policy Act (NEPA) requires preparation of an Environmental Impact Statement (EIS) for major federal actions that significantly affect the quality of the human environment. The 1985 Atlantic Swordfish FMP and the 1983 Atlantic Shark FMP each included a Final EIS. NMFS published a Notice of Intent to prepare the DEIS for the draft FMP in the *Federal Register* (62 FR 45614; August 28, 1997), followed by 21 public scoping meetings. NMFS prepared an issues and options paper, *Issues and Options for Management of Atlantic Tunas, Swordfish, and Sharks* for discussion at the scoping meetings, and invited public comment on other options that should be considered and/or issues that were of particular importance to the public. NMFS held six meetings of its HMS Advisory Panel (AP) during preparation of the DEIS/draft FMP and another meeting during the public comment period of the draft FMP. All HMS AP meetings were open to the public. AP meetings and the 27 public hearings on the draft FMP were held throughout the fishing region to give fishery participants an opportunity to attend meetings and hearings. NMFS took public comment and advice from the AP into consideration when preparing the FEIS.

On March 19, 1999, EPA published the notice of availability of the FEIS for this FMP. At that time, the public comment periods on the draft FMP and Addendum for Atlantic HMS and the proposed and supplemental rule were still open. Thus, NMFS could not make final decisions regarding the preferred alternatives that were proposed in the FMP/DEIS. The Magnuson-Stevens Act requires publication of the final rule within 30 days following the end of the comment period on the proposed rule. In order to comply with requirements under NEPA, the Magnuson-Stevens Act, and the Administrative Procedures Act, NMFS considered the preferred alternatives identified in the DEIS as final for purposes of the earlier FEIS. Once the comment periods concluded, NMFS considered all comments and, when appropriate, modified the preferred alternatives. The final actions are presented in the record of decision, and incorporated in this FMP. This FEIS revises the earlier FEIS available in mid-March 1999.

This revised FEIS addresses the rebuilding and ongoing management of Atlantic tuna, swordfish and sharks. It integrates aspects of domestic and international management of these fisheries under both the Magnuson-Stevens Act and the Atlantic Tunas Convention Act (ATCA). Alternatives to rebuild and manage these fisheries include catch limits, effort limits (time/area closures, gear restrictions, limited entry, commercial retention limits, size limits), permitting and reporting requirements, and other measures. It lays a foundation for both domestic and international management of Atlantic HMS.

Domestic management of Atlantic HMS presents a number of concerns for fishery managers and participants. Several Atlantic HMS have been identified as “overfished” (west Atlantic bluefin tuna, bigeye tuna, large coastal sharks, and north Atlantic swordfish). Building and maintaining sustainable HMS fisheries is particularly challenging given the fact that many nations fish for these species. For most Atlantic HMS fisheries, the United States accounts for a fraction (and in several cases a small fraction) of total fishing-related mortality of these species. Lack of consistency in implementation and enforcement of conservation and management

measures by all fishing nations is a problem that affects domestic HMS management and is considered in this revised FEIS.

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8.2 Purpose and Need for Action

As described in Chapter 1, this final FMP was prepared in response to new requirements of the Magnuson-Stevens Act, among them rebuilding overfished fisheries; minimizing bycatch and bycatch mortality, to the extent practicable; identifying and protecting essential fish habitat; and minimizing adverse impacts of fisheries regulations on fishing communities, to the extent practicable.

8.2.1 Problems for Resolution

The following problems that exist in the fisheries for Atlantic tuna, swordfish, and sharks have been identified in this FMP and are addressed in this revised FEIS. These problems are listed in no particular order and are described more fully in Section 1.1.2.

- Overfished stocks of Atlantic HMS;
- Excess fishing mortality caused by bycatch and discards;
- Inconsistencies and inadequacies in international compliance with conservation and management measures;
- Assuring optimal data collection;
- Domestic HMS management needs to be integrated and streamlined; and
- Overcapitalization.

8.2.2 Management Objectives

The management objectives for the Atlantic HMS FMP are described below and in Section 1.1.5. These objectives serve as the foundation for many all of the final actions and for any future actions under the framework regulation adjustment procedure discussed in Section 3.10. They are listed below in no particular order.

- To prevent or end overfishing of Atlantic tuna, swordfish, and sharks and adopt the precautionary approach to fishery management;
- To rebuild overfished fisheries in as short a time as possible and control all components of fishing mortality, both directed and incidental, so as to ensure the long-term sustainability of the stocks and promote stock recovery of the management unit to the level at which the maximum sustainable yield can be supported on a continuing basis;
- To minimize, to the extent practicable, economic displacement and other adverse impacts on fishing communities during the transition from overfished fisheries to healthy ones;
- To minimize, to the extent practicable, bycatch of living marine resources and the mortality of such bycatch that cannot be avoided in the fisheries for Atlantic tuna, swordfish, and sharks;
- To establish a foundation for international negotiation on conservation and management measures to rebuild overfished fisheries and to promote achievement of optimum yield for these species throughout their range, both within and beyond the exclusive economic zone. Optimum yield is the maximum sustainable yield from the fishery, reduced by any relevant social, economic, or ecological factors;
- To provide a framework, consistent with other applicable law, to take necessary action under ICCAT compliance recommendations;
- To provide the data necessary for assessing the fish stocks and managing the fisheries, including addressing inadequacies in current collection and ongoing collection of social, economic, and bycatch data about HMS fisheries;
- Consistent with other objectives of this FMP, to manage Atlantic HMS fisheries for continuing optimum yield so as to provide the greatest overall benefit to the Nation, particularly with respect to food production, providing recreational opportunities,

preserving traditional fisheries, and taking into account the protection of marine ecosystems;

- To better coordinate domestic conservation and management of the fisheries for Atlantic tuna, swordfish, sharks, and billfish, considering the multispecies nature of many HMS fisheries, overlapping regional and individual participation, international management concerns, historical fishing patterns and participation, and other relevant factors;
- To simplify and streamline HMS management while actively seeking input from affected constituencies, the general public, and the HMS AP;
- To promote protection of areas identified as essential fish habitat for tuna, swordfish, and sharks;
- To reduce latent effort and overcapitalization in HMS commercial fisheries;
- To develop eligibility criteria for participation in the commercial shark and swordfish fisheries based on historical participation, including access for traditional swordfish handgear fishermen to participate fully as the stock recovers; and
- To create a management system to make fleet capacity commensurate with resource status so as to achieve the dual goals of economic efficiency and biological conservation.

8.3 Final Actions

Below is a list of the final actions NMFS will take in this final FMP to address the problems and objectives stated above and in Chapter 1 and a list of the proposed alternatives presented in the draft FMP. A number of the alternatives were changed or altered based on public comment and advice from the AP. For a full description of the reasons behind each change please see the comment and response section available in Appendix 8. The full range of alternatives considered in the HMS FMP, and analyses of the impacts of all alternatives, can be found in Chapters 3 and 4.

Preferred Alternative in Draft FMP	**Final Action in Final FMP**
Tunas	
Prohibit pelagic driftnets for tuna	Same, but allow the few vessels using coastal driftnets to target dogfish, bluefish, monkfish, and weakfish to obtain experimental fishing permits for tuna catch. This will allow collection of data; NMFS will re-examine later
ICCAT Rebuilding Program: 2,500 mt ww west Atlantic TAC, 1,387 mt ww landing quota for United States - 20 year recovery	Same
Status quo percentage allocations, with Purse Seine category capped at 250 mt ww	Remain as proposed unless changed. Consult with the HMS AP.
Add “Consider effects on rebuilding and overfishing” as quota transfer criteria	Same
Status quo on bluefin tuna size limits	Same

Preferred Alternative in Draft FMP	Final Action in Final FMP
Status quo: Bluefin Tuna Angling Category for recreational retention limits	Same
Time/area closure in north mid-Atlantic for pelagic longlines in June - 4x4 degree block: 37 to 41° N, 70 to 74° W	Smaller time/area closure with a different shape in north mid-Atlantic for pelagic longlines in June - 1x6 degree block: 39 to 40° N, 68 to 74° W
10-Year Recovery Program for bigeye tuna (if adopted by ICCAT)	Establish the foundation to develop an international 10-year rebuilding program for Atlantic bigeye tuna;
Status quo minimum size for bigeye tuna	Same
Spotter planes allowed	Same, follow up in a separate rulemaking
Establish a "School Reserve" Category	Same
Status quo minimum size for yellowfin tuna	Same
Establish a recreational retention limit of 3 yellowfin tuna/person/day	Same
Fishing year begins June 1 and ends May 31 for tuna	Same
Swordfish	
10-year recovery period (8,000 mt ww)	Establish the foundation to develop an international 10-year rebuilding program for north Atlantic swordfish
Account for dead discards in swordfish management (Recreational and commercial fisheries)	Establish a foundation to account for dead discards in swordfish management; adopt if recommended by ICCAT.
Count recreational landings toward Incidental quota	Same
Prohibit imports of Atlantic swordfish weighing less that the U.S. minimum size,(proposed under separate rulemaking, contained in proposed rule that accompanied draft FMP)	Same
Neither preferred nor rejected as an alternative in draft	Status Quo retention limits for the directed commercial fishery
Neither preferred nor rejected as an alternative in draft	Status Quo bycatch limits in incidental fisheries
Neither preferred nor rejected as an alternative in draft	Status Quo retention limits in the recreational fishery
Status quo minimum size	Same
Time/area closure of Florida Straits to longline fishing from July through September	Prepare a proposed rule that would implement a more effective closure area to protect small swordfish
Status Quo authorized gears (driftnet prohibition proposed under separate rulemaking, contained in proposed rule that accompanied draft FMP)	Same, but now includes prohibition of pelagic driftnet gear form separate rulemaking
Fishing year begins June 1 and ends May 31 for swordfish	Same

Preferred Alternative in Draft FMP	Final Action in Final FMP
Sharks	
Prohibit possession of uncommon and seriously depleted LCS in addition to the 5 currently prohibited species; allow retention (consistent with established quotas and recreational retention limits) of certain commonly landed LCS (sandbar, silky, tiger, blacktip, spinner, lemon, bull, nurse, smooth hammerhead, scalloped hammerhead, great hammerhead), pelagic sharks (shortfin mako, common thresher, porbeagle, oceanic whitetip, blue) and SCS (Atlantic sharpnose, blacknose, finetooth, bonnethead) within federal waters. Redefine management unit categories accordingly	Same with a few exceptions; blue sharks are not prohibited. Also, oceanic whitetips have a ridge but are not a LCS. Therefore, landings of oceanic whitetip must include fins for proper identification and enforcement. Prohibited sharks 19 species
Separate LCS management unit into ridgeback and non-ridgeback LCS with each subgroup having separate quotas; establish a minimum size and maintain quota level of 642 mt dw on ridgeback LCS; reduce the quota on non-ridgeback LCS to 218 mt dw	Same, but lower quotas to take into account the public display quota. Ridgeback quota = 622 mt dw. Non-ridgeback quota = 196 mt dw. Ridgeback large coastal sharks 3 species Non-ridgeback large coastal sharks 8 species
Establish a species-specific quota for porbeagle sharks of 30 mt dw; reduce pelagic shark quota by 30 mt dw to 550 mt dw	Same, but revised data so the species-specific quota for porbeagle sharks is 92 mt dw; the pelagic shark quota is reduced by 92 mt dw to 488 mt dw Pelagic sharks 5 species
Establish a separate dead discard quota for blue sharks of 273 mt dw (545 mt ww); reduce pelagic shark quota by overharvests in blue shark quota	Establish a separate blue shark quota of 273 mt dw for landings and dead discards; the pelagic shark quota will still be reduced by overharvests in the blue shark quota.
Cap commercial SCS quota at 10% higher than 1997 levels (359 mt dw) pending future assessment	Same Small coastal sharks 4 species
Season-specific quotas and adjustments for the commercial fisheries; annual recreational retention limits and adjustments for recreational fisheries	Same
Account for all sources of fishing mortality in establishing quota levels, including counting dead discards and landings in state waters after federal closures against the federal quotas	Same
Establish separate public display quota of 60 mt ww (5% of LCS commercial quota); establish separate public display permitting and reporting system	Same
Status quo commercial retention limit (4,000 lbs dw per trip for LCS)	Same
Schedule fishery openings for specified periods; season-specific adjustments for quota overharvests and underharvests the following year (no reopening within that season)	Same

Preferred Alternative in Draft FMP	Final Action in Final FMP
Establish catch and release only recreational fishing for LCS and SCS and establish a recreational retention limit of 1 pelagic shark/vessel/trip	Establish a recreational retention limit to 1 shark/ vessel/trip with a minimum size of 4.5 feet (any species) and establish an allowance for 1 Atlantic sharpnose shark/person/trip (no minimum size)
Require that all sharks harvested by recreational anglers have heads, tails, and fins attached	Same
Status quo (no time/area closures for shark nursery and pupping areas)	Same
Adopt the Large Whale Take Reduction Plan Regulations under the authority of the Magnuson-Stevens Act	Same
Not preferred in draft	Require 100% observer coverage in the shark drift gillnet fishery at all times; prohibit the use of gillnet gear in Atlantic shark fisheries unless a NMFS-approved observer is on board
Extend prohibition on finning to all sharks as condition of federal permit	Create new management group of "no finning allowed" species: deepwater and other (formerly data collection only) Deepwater/other sharks 33 species
Dissolve OT as superceded by HMS AP	Same
Fishing year begins January 1 and ends December 31 for sharks.	Same
All Species	
Require VMS for all pelagic longline vessels	Same
Require all gear to be marked with vessel identification number	Same; but may mark gear with vessel name
Move after one entanglement with protected species	Same
Limit length of mainline in MAB (interim measure)	Same
Close critical right whale habitat to LL and driftnet vessels	Not selected; would require preemption of states to implement under the Magnuson-Stevens Act
Mandatory education workshops for LL and driftnet vessels; Voluntary workshops for recreational fishermen	Voluntary education workshops for all HMS fishermen. Re-examine need for mandatory workshops for pelagic longline fishermen later.
Require observers on charterboats	Voluntary observer coverage of HMS charter/headboats. If enough data are not collected, establish a mandatory observer program.
Require charter/headboat vessels to obtain an annual vessel permit	Same; however, NMFS clarifies that this final action requires all tuna vessels, charter/headboat vessels, and commercial shark and swordfish vessels to obtain an annual vessel permit (previous authority for tuna, shark and swordfish vessels)

Preferred Alternative in Draft FMP	Final Action in Final FMP
Require Charter/headboat vessels to submit logbooks	Same; however NMFS clarifies that this final action requires commercial shark and swordfish, and charter/headboat vessel to submit logbooks, if selected (previous authority for shark and swordfish vessels).
Require tournament registration for tournaments that land HMS	Same
Complete logbooks within 24 hours of hauling a set	Complete logbooks within 48 hours of each day's fishing activities but prior to offloading.
Mandatory observer coverage for purse seine and harpoon vessels, if selected	Same, except NMFS clarifies that this authority already exists for a broader group (i.e., mandatory observer coverage for all tuna vessels, and commercial shark and swordfish vessels, if selected.)
Limited Access	
Limit access	Same
Require a shark or swordfish permit during July 1, 1994, through December 31, 1997	Same
Require landings between January 1, 1987, to December 31, 1997 (swordfish); January 1, 1991, to December 31, 1997 (shark)	Same
Require a permit between June 1, 1998, to August 31, 1998 (swordfish); July 1, 1998, to August 4, 1998 (shark)	Require a permit between June 1, 1998, to November 30, 1998 (swordfish); January 1, 1998, to December 31, 1998 (shark)
Require landings of at least 25 swordfish or 102 sharks per year in any two calendar years during the landing eligibility period	Same or provide documentation of $5,000 worth of swordfish or shark landed per year
To qualify for an Atlantic swordfish directed or incidental permit, must obtain at least an Atlantic shark incidental permit	Same
Require landings of at least 11 swordfish and establish an minimum earned income requirement of more than 50% of their earned income from commercial fishing through the harvest and first sale of fish or from charter/headboat fishing, or those who had gross sales of fish greater than $20,000 harvested from their vessel, during any one of the last three calendar years; require landings of at least seven sharks	Same
No shark landings required if qualified for an initial directed or incidental swordfish limited access permit	Same
Issue a handgear permit to those fishermen who provide documentation of having been issued a swordfish permit for use with harpoon gear or those who landed swordfish with handgear as evidenced by logbook records, verifiable sales slips or receipts from registered dealers, or state landings records	Same

Preferred Alternative in Draft FMP	Final Action in Final FMP
Issue directed fishery handgear permits to those applicants who meet the earned income requirement, i.e., those who had derived more than 50% of their earned income from commercial fishing through the harvest and first sale of fish or from charter/headboat fishing, or those who had gross sales of fish greater than $20,000 harvested from their vessel, during one of the three calendar years preceding the application	Same
If qualify for an initial directed or incidental swordfish limited access permit, an Atlantic tuna longline permit will be issued by NMFS	Same
If not eligible for an initial swordfish or shark directed or incidental limited access permit but had a valid Atlantic tuna incidental permit as of August 31, 1998, then NMFS will issue initial incidental swordfish and shark limited access permits; no fishing for Atlantic tuna with longlines would be allowed without these incidental limited access permits.	Same, but through December 31, 1998
Written appeals only, no hardship cases heard	Same
Allow 15 swordfish per vessel per trip for directed swordfish permit holders until the incidental set-aside is filled	Same
For swordfish incidental limited access permits, allow five swordfish per trip for squid trawl vessels or two swordfish per trip for all other gear types. For shark incidental limited access permit holders, allow five large coastal shark per vessel per trip for all gear types, and a total of 16 pelagic or small coastal sharks, all species combined, per vessel per trip for all gear types	Same
Limited access permits are transferable with or without the sale of the permitted vessel, or to a replacement vessel owned or purchased by the original permittee (subject to upgrading restrictions - see following section), but not under any other circumstances.	Same
Adopt NEFMC and MAFMC upgrading restrictions	Same, but collect data and consider other methods, including hold capacity, for future
Restrict the number of Atlantic swordfish or shark permitted vessels that any one person or entity could own or control to no more than 5% of the directed swordfish or shark permitted vessels in the directed fisheries	Same

8.4 Affected Environment

A full description of the affected environment, including the status of the stocks; a description of domestic and international fisheries; and economic characteristics of the fisheries can be found in Chapter 2. A description of the essential fish habitat can be found in Chapters 5 and 6. Information on how each of the alternatives considered may affect the environment can

be found in Chapter 3. Chapter 9 contains a description of the social characteristics of the fisheries and a more detailed discussion of the expected social impacts of the final actions on the fishing communities.

8.5 Environmental Consequences of Fisheries Actions: Effects of the Fishery on the Environment

Five criteria are identified in Section 6.11 of NOAA Administrative Order 216-6 to assist in the evaluation of the significance of the fisheries management action. Significance must be evaluated in determining whether to prepare a EIS or to issue a Finding of No Significant Impact. The following discussion addresses each of the five points relative to the Atlantic HMS FMP.

1. *Will the final actions jeopardize the productive capacity of the target resource species or any related stocks that may be affected by the action?*

Rebuilding overfished stocks and preventing overfishing of healthy stocks is a major objective of the HMS FMP and an important directive from Congress in the form of National Standard 1 of the Magnuson-Stevens Act. National Standard 1 states that "Conservation and management measures shall prevent overfishing while achieving, on a continuing basis, the optimum yield from each fishery for the United States fishing industry." Optimum yield is defined as the yield from a fishery that will provide the greatest overall benefit to the Nation, particularly with respect to food production and recreational opportunities and taking into account the protection of marine ecosystems. Optimum yield is the maximum sustainable yield from the fishery, reduced by any relevant social, economic, or ecological factors.

For the HMS fisheries, the fishing mortality rate that produces optimum yield is set at the yield resulting from fishing at 75 percent of maximum sustainable yield. Based on modeling results (Restrepo *et al*., 1998), this yield is expected to average more than 90 percent of the maximum average long-term yield (i.e., maximum sustainable yield), for stocks that are not overfished. The limit fishing mortality rate is the equivalent of the maximum fishing mortality threshold. For Atlantic HMS, the maximum fishing mortality threshold is the fishing mortality which produces maximum sustainable yield. Thus, the fishing mortality rate which produces optimum yield should be set sufficiently below the maximum fishing mortality threshold to: 1) ensure that the limit is not regularly exceeded; and 2) that the two can be statistically distinguished from each other. Setting the target fishing mortality rate below the maximum fishing mortality threshold also safeguards against uncertainty in stock assessments, imperfect implementation of management actions, and any other factors that can cause the fishing mortality limit to be approached or surpassed.

The cumulative long-term impact of the final actions is to establish sustainable fisheries for Atlantic tuna, swordfish, and sharks (Chapter 3 and 4). In the case of overfished stocks (west Atlantic bluefin tuna, bigeye tuna, north Atlantic swordfish, and large coastal sharks), achievement of this long-term goal is dependent upon rebuilding the stocks. The final action will not jeopardize the productive capacity of the target species. In some cases, the final action may cause an increase in fishing pressure on non-target stocks such as dolphin and wahoo. These effects are considered in the FMP and are not expected to jeopardize the productive capacity of

the stocks.

2. Will the final actions cause damage to ocean or coastal habitat?

The final actions are not expected to have any adverse effects on ocean and coastal habitats. The majority of fishing activity for Atlantic tuna, swordfish, and sharks occurs in deep oceanic waters, often in the pelagic zone which is relatively structure-free. The habitat types and distribution of Atlantic tuna, swordfish, and sharks are described in Chapter 5. The essential habitat of Atlantic tuna, swordfish, and sharks is described in Chapter 6. A discussion of potential threats to Atlantic HMS EFH is provided in Chapter 6.

3. Will the final actions have an adverse impact on public health or safety?

National Standard 10 of the Magnuson-Stevens Act emphasizes the requirement that conservation and management measures shall, to the extent practicable, promote the safety of human life at sea. Fishing is an inherently dangerous occupation where not all hazardous situations can be foreseen or avoided. The final actions are not expected to have any substantial adverse impact on public health or safety at sea. Section 3.9 discusses safety concerns and mitigating factors in HMS fisheries. In addition, where relevant, safety concerns are discussed in the analysis of management alternatives in Chapter 3.

4. Will the final action have an adverse effect on endangered or threatened species or a marine mammal population?

Under requirements of the MMPA, NMFS produces an annual List of Fisheries that classifies domestic fisheries, by gear type, relative to their rates of incidental mortality or serious injury of marine mammals. The List of Fisheries includes three classifications:

- Category I fisheries are those with frequent serious injury or mortality to marine mammals;
- Category II fisheries are those with occasional serious injury or mortality; and
- Category III fisheries are those with remote likelihood of serious injury or mortality to marine mammals.

Vessels participating in Category I or II fisheries are required to be registered under the MMPA and upon request, to accommodate an observer aboard their vessels. Vessel owners or operators, or fishermen, in the case of nonvessel fisheries, in Category I, II, or III fisheries must report all incidental mortalities and injuries of marine mammals during the course of commercial fishing operations to NMFS Headquarters.

Of the Atlantic highly migratory species fisheries, the pelagic longline fishery is listed as a Category I fishery, subjecting it to increased bycatch information collection requirements, including observer coverage and submission of daily logbook reports on catch and effort. The Atlantic purse seine fishery, which targets tuna, primarily bluefin tuna, was required to have 100 percent observer coverage in 1996 due to concern about possible marine mammal interactions. The observer program did not document any such interactions, and the requirement for coverage

was lifted in 1997.

The southeast shark drift gillnet fishery is classified as a Category II fishery that is believed to be responsible for bycatch of at least one right whale. This fishery is subject to the recommendations of the Atlantic Large Whale Take Reduction Plan, which requires that drift gillnet gear be marked; establishes a closed period and restricted area from November 1 through March 31 each year, for the area near Savannah, GA, south to near Sebastian Inlet, FL; requires 100 percent observer coverage during the closed period; establishes special provisions for strikenets; and establishes a provision to close the restricted area to this gear type if an entanglement with this gear occurs (62 FR 39157, July 22, 1997). Implementation of these recommendations is a final action. In addition, NMFS is establishing 100 percent observer coverage for the shark drift gillnet fishery as described in Section 3.8.

The Atlantic pelagic driftnet fishery has been listed as a Category I fishery since 1991 due to takes of marine mammals which exceed 50 percent of the potential biological removal (PBR) level. Based on 1991 to 1995 observer data, an estimated 282 marine mammals were killed annually, including: 187 common dolphins, 25 pilot whales, 19 offshore bottlenose dolphins, 14 spotted dolphins, 13 Risso's dolphins, 11 striped dolphins, and ten beaked whales. Marine mammal interactions by the pelagic driftnet fishery are addressed in the Atlantic Offshore Cetacean Take Reduction Plan (AOCTRP). Earlier this year, NMFS banned the use of pelagic driftnets in the swordfish fishery (64 FR 4055). This FMP bans the use of pelagic driftnets in the Atlantic tuna fishery. It is unlikely that these final actions will harm marine mammals.

The Atlantic Offshore Cetacean Take Reduction Team (AOCTRT) was formed in 1996 to address protected species bycatch by vessels using pelagic longline and pelagic driftnet gear to catch Atlantic tuna and swordfish. The draft Atlantic Offshore Cetacean Take Reduction Plan was submitted to NMFS in November 1996. It recommended a set allocation scheme to reduce marine mammal takes in driftnets and a suite of gear modification and educational measures for the pelagic longline fishery. Other recommendations included increased research on acoustic deterrents, more comprehensive educational programs for fishery participants, and research on cetacean behavior. These measures are not established in this FMP as many require NMFS to supercede state authority.

Capture of endangered sea turtles in HMS fisheries is covered under the Section 7 consultative process. In 1995, 823 sea turtles were captured in the pelagic longline fishery, most of which were released alive (Cramer, 1996a). In pelagic driftnet gear, 24 turtles were caught. An Incidental Take Statement outlined measures to reduce sea turtle bycatch in driftnets, including a mandatory observer program in the North Carolina and Northeast areas and an annual evaluation of the fishery (NMFS 1997a; NMFS 1998). It is unlikely that any of the final actions will have an adverse affect on sea turtles.

The final actions are not expected to jeopardize the productive capacity of stocks of protected marine mammals, sea turtles, or sea birds. The measures established in this FMP are expected to reduce the rate of serious injury and mortality caused to marine mammals by the pelagic longline and shark drift gillnet fisheries.

5. Will the final actions result in cumulative adverse effects that could have a substantial effect on the target resource species or any related stocks that may be affected by the action?

The final actions are not expected to result in cumulative adverse impacts that might have a substantial effect on the Atlantic tuna, swordfish, and shark stocks or any related resources, including endangered and threatened species, such as turtles or marine mammals. In fact, the over-arching goal of this FMP is to implement rebuilding plans to reduce directed and bycatch mortality rates for overfished stocks and to manage healthy stocks for the optimum yield. Measures established to reduce bycatch and bycatch mortality are discussed in Section 3.5. The precautionary approach to fisheries management (Mace, 1997) was applied widely in the evaluation of all alternatives in order to decide on final actions. One notable example is the reorganization of the shark management unit, shifting species that are rarely caught or whose stocks are in a depleted condition to the list of prohibited species and allowing retention of those species known or expected to be able to withstand specified levels of fishing mortality (Sections 3.4.1.3 and 3.4.2.3).

8.6 Unavoidable Adverse Effects

The unavoidable adverse impact of the final actions in this FMP is that it will transform the commercial swordfish, shark, and tuna fisheries that were previously open to all U.S. residents into one that will be restricted to those permit holders who can demonstrate at least a threshold level of historical landings. This adverse impact is unavoidable because of the mismatch that has been created by escalating fleet capacity combined with a dwindling resource. If this action is not taken, and new fishermen continue to enter the fishery, it is highly likely that many businesses will suffer severe economic hardship in the future (see Chapter 7). If this action is not taken, it is also likely that effective fishing pressure on the resource will increase, thus leading to further declines in net benefits as the fishing season collapses and the "race for the fish" intensifies. In an open access system where fleet capacity has met or exceeded that needed to harvest the surplus production from the resource as is the case for swordfish and sharks, individuals compete to catch as many fish as possible as quickly as possible. This may result in poor fishing practices such as hasty deployment and retrieval of gear that may result in many fish being killed but not boated, and selection of fishing grounds for proximity to land or high catch rates of target species without regard for bycatch of other species or undersized fish.

8.7 Irreversible or Irretrievable Commitment of Resources

No irreversible or irretrievable commitments of resources are expected.

8.8 Mitigating Measures

No significant environmental impacts are expected to result from the final actions in this FMP; therefore, no mitigating measures are proposed.

8.9 List of Preparers and Agencies Consulted

The complete list of preparers and agencies consulted can be found in Sections 1.10 and 1.11. The development of this FMP involved input from numerous government agencies and

constituent groups, including: NOAA, NMFS Southeast Fisheries Science Center; NMFS Northeast Fisheries Science Center; NMFS Northeast Regional Office; NMFS Southeast Regional Office; NMFS Headquarters Staff (F/SF; F/PR; F/HC; F/ST; F/PA); and U.S. ICCAT Advisory Committee. NMFS also consulted with and received comments from many groups and agencies. As part of the HMS management process, "consulting parties" participate in the preparation and evaluation of draft FMP documents. The consulting parties include the U.S. Department of State (DOS); the U.S. Coast Guard (USCG); the New England Fishery Management Council; the Mid-Atlantic Fishery Management Council; the Caribbean Fishery Management Council; the Gulf of Mexico Fishery Management Council; the South Atlantic Fishery Management Council; U.S. ICCAT Advisory Committee; ICCAT Commissioners; and the APs appointed under the Magnuson-Stevens Act. Copies of the draft FMP were distributed to the consulting parties during the public comment period. NMFS carefully considered all comments received from the public and the consulting parties before developing the final actions in this FMP. In addition, NMFS received valuable support in the development of this FMP from commercial and recreational fishermen who have provided NMFS with valuable comments, information about the fisheries, and data in the form of mandatory logbooks, voluntary economic information, and observer information for many years. Comments received from the environmental community and other concerned constituents were also helpful in the development of the alternatives considered in this FMP.

References Cited in Chapter 8

NMFS. 1998. Final Consideration of the Economic Effects and Potential Alternatives to the 1997 Quotas on the Atlantic Coastal Shark Fishery. May 14, 1998. 76pp.

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